I. *An Obſervation of an Operation made by the* high Apparatus, *according to M.* le Cat's *Method, in the Year* 1743; *by* Claud. Nic. le Cat, *M. D. F. R. S. Surgeon to the* Hotel Dieu *at* Rouen, *and Royal Demonſtrator in Anatomy and Surgery; tranſlated from the* French *by* Philip Henry Zollman, *F. R. S.*

Read May 1. 1746. I HAVE given to the * *Royal Society* a Deſcription of a particular Method of making the high *Apparatus*, and have proved its Theory, by a Cure happily performed in practiſing it. — The Spring of the Year 1743 furniſhed me with a new Opportunity of confirming the Goodneſs of this Method; which, by certain Circumſtances, was put to ſuch a Trial, that I queſtion whether the Stone could have been taken out by any other Manner of Cutting. For this Reaſon I have thought this Obſervation deſerved a Place, as a Supplement to the Account which I have preſented to the *Society* concerning this Method.

Joſeph Bunel, of 12 Years of Age, a Native of *la Bucaille*, and living at *Vitry* near *Andely*, was afflicted with the Stone for 8 or 9 Years paſt.

Friday the 17th of *May* 1743, being the Day appointed to cut him, I prepared myſelf to do it by the

* See theſe *Tranſ.* N°. 476, *p.* 391.

the lateral *Apparatus*, which is the common Method. At 5 o' Clock in the Morning the Patient was placed in the uſual Manner for the Operation; and I, endeavouring to enter the Probe, in order to cut him laterally, found the Stone ſo big, or at leaſt ſo far advanced in the Neck of the Bladder, that I had all the Trouble in the World to make the Inſtrument enter; nor could I effect it, otherwiſe than by thruſting it quite on the Side. I put my Finger into the *Anus*, and was convinced of the Reality of the Circumſtances which the Probe had made appear: I immediately thought that the Situation of this Stone in the Neck of the Bladder would hinder me from bringing the Inſtruments freely to it; that, as this hard Body ſeem'd exactly to fill the Bladder, it would be impoſſible to introduce a Pair of Pincers between it and the Inſides of the Bladder; that, its Bulk being too conſiderable, would cauſe a mortal Laceration by the low *Apparatus*; and, laſtly, that the Patient was in ſuch a Caſe of Neceſſity, as required to have recourſe to the high *Apparatus*.

Not having ſuſpected all theſe particular Circumſtances, and not being much inclined to make an Operation in Town, which I had as yet made but once, I had not brought my Inſtruments with me for cutting by the high *Apparatus*; but, ſeeing it would be a Raſhneſs in this Caſe, to perform the lateral Operation, and not to prefer the high *Apparatus* to it, contrary to all my Experiments and Principles, I put off the Operation to the next Day, and ſent to *Roüen* for my Inſtruments for cutting by the high *Apparatus*.

That

That Day at Noon I gave the Patient a very light Soup.

Saturday the 18th, I cut him by the high *Apparatus* at 8 in the Morning. The Surgeon who was gone to fetch the Inſtruments, brought Mr. *Graſſe*, a Surgeon from *Dublin*, with him, who was come to *Roüen*, on the Part of Meſſieurs *Morand* and *Verdier*, to ſee my Way of Cutting; and I had 10 or 12 young Surgeons with me who were come from *Roüen*.

The Patient was placed upon one of thoſe little Beds which the Turners make for the Country People; the two Extremities of the Bed were rais'd, eſpecially that which was to ſupport the Thighs, and the Middle was hollow; the Whole covered with *Alaizes* *.

The Patient's Head was towards the Light; his Hands and Feet were tied acroſs the Bed, in the Places where they came to lie, when the Patient was laid on his Back; his Legs were ſtretch'd and open; his Arms brought down below his Hips; in a Word, he was in a very convenient Poſture. I was on the right Side of the Patient.

In this Manner I thruſted an *Algalie* (or hollow *Catheter*) into the Bladder, introducing it on the Side, as I had done the Day before. I injected a Syringe-full of lukewarm Water into the Bladder; which occaſion'd a Protuberance not immediately above the *Pubis*, but three or four Fingers Breadth higher;

* Theſe are Cloths folded ſeveral times, and laid under the Patients, to keep them cleanly.

higher; which plainly proved, that the Stone took up the whole exterior and inferior Region of the Bladder.

I opened the Teguments, and thruſted my Inſtrument into the Bladder cloſe to the *Pubis*; but, finding there only one Membrane, and the Stone, I was obliged to bring the Edge of my Knife upwards, and then the Inſtrument really enter'd, and Abundance of Water and Urine came forth.

I turn'd again my Inſtrument, to ſupport the Bladder with the projecting Part, which is on the Back of it *. I ſlipt over it the ſtrait *Suſpenſor* (a *Catheter* that opens with a Bow), and dilated the Bladder with the Inciſion Knife, towards the *Pubis*, and introduced the lateral *Suſpenſors:* I put my Finger into the Bladder, and, having felt a Stone which was above the firſt, I pull'd out this upper Stone with the *Forceps*, which broke between the lateral *Suſpenſors*. I put my Finger in again, and felt another; which I took hold of, and pull'd out, taking it for a third Stone, though it was but a Fragment of the firſt, which had eſcaped the *Forceps*.

This Fragment being taken out, I put my Finger in again, and felt diſtinctly that the Bladder was parted into two Chambers, like a Gourd. In the upper hindermoſt Chamber, which I had open'd, the Injection was lodg'd, and the Stone which I had taken out. In the nethermoſt Chamber I felt the great Stone, which went as far as the Neck of the Bladder, the Top of which was ſurrounded by the Bladder like a Neck,

* See the Figures in the preceding Account, *Tranſ.* N°. 476.

Neck, the Opening of which did not admit more than the Tip of one's Finger, with which I felt that the Partitions of the Bladder were cloſely united, and adhered to the Surface of this Stone.

Theſe melancholy Diſcoveries made me very uneaſy; this particular Structure of the Side of the Bottom of the Bladder making me ſenſible of the ſame Impoſſibility of introducing my Inſtruments, which I had met with towards the *Perinæum*. I try'd to thruſt my Finger by Force between the Stone and the Bladder, by ſetting the Nail ſtrongly againſt the Stone, and looſening the Bladder from it, which ſeem'd to adhere to it, dilating at the ſame time the Bladder with all the Force my Finger was capable of. I at laſt introduced my Finger to a certain Length, with which I looſened the adherent Parts from the Stone all along as far as my Finger could reach; then I try'd to paſs in my *Forceps*, afterwards my different Scoops, but all in vain. I was for an Inſtant believing that I could not get it out. This frightful Idea made me redouble my Endeavours.

I begun to dilate again with the Forefinger of my left Hand, and, with the ſame Finger, and the Thumb of my right Hand in the *Anus*, I violently thruſt the Stone upwards towards the Belly, after a long and painful Labour, both for the Patient and the Operator. I introduced upon my Finger, which was between the Stone and the Bladder, the ſmall Scoop of my double Crochet (ſee *Fig.* II. TAB. IV. *Tranſ.* 476.): I advanced it quite beyond the Stone, and then I began to pull, having wrapp'd ſome Linen round the Inſtrument which hurt me; but the *Pubis*, under which the Stone was, cauſed an Obſtacle, not

to

to be overcome. I therefore ordered an Aſſiſtant to puſh through the *Anus* the Stone towards the Belly; and I, on my Side, having diſcover'd the End of the Stone under the *Pubis*, put in the Fore-finger of my right Hand, and preſs'd as hard as poſſible the Stone with it towards the Spoon, which, at the ſame time, I ſtrongly pull'd with my left Hand. Theſe three Forces being united, made the Stone at laſt give Way, and brought it forth to the Joy of the Spectators, as well as the Patient. The upper Side of the Stone, that is to ſay, that which anſwer'd to the *Pubis*, was pretty even, and ſeem'd to give a Paſſage to the Urine; the nether or hindmoſt Side, which lay towards the Proſtates and the Entrance of the Bladder, kept the Shape of theſe Parts; its Subſtance was crumbling, of a reddiſh Colour, and like the Membrane of the Bladder, having a fungous Poile on it (ſee the *Figures*, TAB. I. of this *Tranſaction*), with which it ſeem'd to have been incorporated, and of which a ſort of Covering yet remain'd upon its Surface; this Covering being taken off, and the Stone a little dried, this whole appear'd to be pierced with Poroſities, which ſeem'd to have been the Receptacles of the foreſaid Poile. There was no Mark on this Side of any Urine having paſſed.

A Pledget charged with Digeſtives, a Rag dipp'd in an Embrocation, and an emollient Cataplaſm, were laid upon the Wound; the Patient was laid upon the Belly, his Breaſt being ſupported by one Bolſter, and his Head by another.

Saturday, 1ſt Day. An Hour after he was let Blood 3 Porringers full.

He

He found himſelf a little out of Order after Bleeding, and had ſeveral *Nauſea's*. I had a ſimple Cordial made for him with five Ounces of Balm-Water, one Ounce of Syrup of Barberries, and one Ounce of Syrup of Clove-july flowers; of which he took ſeveral Spoons-full a Day, when his Spirits ſeem'd to fail him.

He ſweated much all the Afternoon; which made me defer bathing him till half an Hour after Seven; his Pulſe was ſhort, quick, and ſtrong: The firſt Hour he was in the Bath made no Alteration; he was ſick at Heart, and ſpit up a white Froth; at laſt he fell aſleep in the Bath for at leaſt an Hour: His Pulſe ſeem'd to be ſlower, and, coming out of the Bath, he found himſelf very well. He was dreſſed as before at 10 o' Clock, and laid upon the Belly. He ſlept beſt Part of the Night, which hindred his being blooded at 3 or 4 o' Clock, as I had order'd.

May 19th, *Sunday*, 2d Day.] At 8 o' Clock in the Morning I found him in a ſtrong Fever. I had two Porringers of Blood taken from his Arm: The Bleeding made his Pulſe ſhort, low, and quick, and himſelf ſick at Heart. His Pulſe grew ſtrong again, and the Fever came upon him. I deſigned to bathe him yet that Morning; which ſhould have been done if he had been blooded earlier; but it was late; and, beſides, he had had no Stool. I therefore thought it neceſſary to give him an emollient and anodyne Clyſter at 10 o' Clock. He was afterwards dreſs'd; and I deferred his Bathing till 4 in the Afternoon: But the Clyſter not being come from him, and the Boy complaining of a Pain in his Stomach, I order'd him

him to be put in the Bath from half an Hour paſt 11, till half an Hour paſt 1.

He found himſelf very well in the Bath; his Clyſter there came from him, and he had a good Stool. He was put to Bed again at a Quarter paſt 1: There he had another Stool, and found himſelf very well; nevertheleſs he was yet very feveriſh.

He ſlept from half an Hour paſt 4 till half an Hour paſt 6; after which his Fever was almoſt half gone.

He was put into the Bath again at half an Hour paſt 7 in the Evening. He deſired it himſelf; partly on account of the Eaſe which it had hitherto given him; partly becauſe the Situation of lying on his Back, and ſitting in the Bath, was an agreeable Change from that of lying on his Belly; which he was oblig'd to do in his Bed. His Pulſe was very well in the Bath; his Look and Eyes were more clear than in the preceding Bathings; and indeed he neither had any Pain in his Belly, nor at his Stomach, nor in his Breaſt, nor in his Head; the Wound only ſmarted now and then; he could not bear being touch'd about it; however his Belly was very flat, and he began to be hungry.

He ſtaid an Hour and half in the Bath, and ſlept good Part of the Night and Morning.

Monday, *May* 20th, 3d Day.] He did not wake till 8 o' Clock: He had hardly any Fever at all, and he found himſelf much better than the Day before.

I order'd another Clyſter to be given him, on account of the Benefit which he had received from it the Day before, and becauſe he had not been at Stool ſince. It made him ſick at Stomach again, and did not come from him.

I had

I had him put into the Bath at 9 o' Clock. Part of his Clyſter came from him there an Hour and half after. At every Bathing I order'd a Spoonful of Cordial to be given him at going in, and towards the Middle of the Bath a Meſs of Broth, or 2 half Meſſes. He came out at the End of two Hours.

After this fourth Bathing he found himſelf almoſt without any Fever; and was ſo well, that he teiz'd us and the Nurſes for ſomething to eat. This determined me to let the Suppuration quietly fix itſelf; which ſeem'd already to begin at the Wound of the Teguments. He made Water this Day once or twice through the *Penis*.

Tueſday, May 21ſt, 4th Day.] In the Morning he was without a Fever; and the Diſtemper which he complain'd of moſt was Hunger. I then ſet out for *Roüen*.

The Patient continued to grow better every Day. I returned the 10th Day, to preſcribe him a leſs ſtrict Diet.

The *Cicatrix* of the Bladder had form'd itſelf on the 20th. That Day no Urine at all paſſed any more through the Wound of the Belly, a large Bandage was laid over the Wound, and he was ſometimes put on his Back; eſpecially after he began to make Water through the *Penis*.

The Wound of the Teguments was intirely cicatrized on the 40th Day; and he was ſo well, that he came to ſee me at *Roüen* on the 50th Day. He was grown ſo fat, that I hardly knew him again.

Explanation of the Figures. TAB. II.

Fig. 1. repreſents the anterior and upper Side of the Stone.

Fig. 2. the poſterior and under Side, which reſted partly upon the *Proſtatæ*. This Side of the Stone was attach'd to the Bladder.

a. the Place where the Body of the Bladder was contracted in Form of the Neck of a Gourd.

b. the Extremity, which was lodged in the Beginning of the *Urethra*.

c. the Impreſſion made by the Nail of the Fore-finger of my left Hand, in paſſing it between the Stone and the Inſide of the Bladder, in order to detach them from each other, and to dilate the Bladder ſufficiently to introduce the Crochet.

II. *The Deſcription of an Hygrometer made of a* Deal Rod: *Being Part of Two Letters from Mr.* William Arderon, *F.R.S. to Mr.* Henry Baker, *Fellow of the ſaid* Society.

SIR, * * *

Read May 8. 1746. IN *October* laſt I contrived and made an Hygrometer; the firſt Hint whereof I received from Obſervations on the Swelling of Deal Doors againſt Rain.

I perceived this Wood expanded itſelf very conſiderably, laterally, or acroſs its Grain: And this I imagined, if properly made uſe of, might ſhew, not badly, the different Degrees of Moiſture or Dryneſs in the Air.

Theſe Thoughts ſet me upon ſearching the *Philoſophical Tranſactions* (as I do moſt commonly, when I take

Philos. Trans. N.° 480. TAB. I.

Fig. 1.
p. 183.

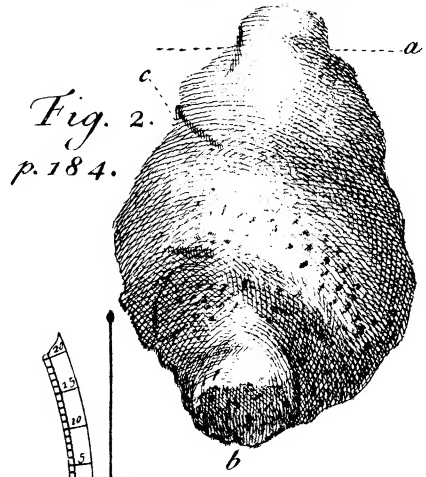

Fig. 2.
p. 184.

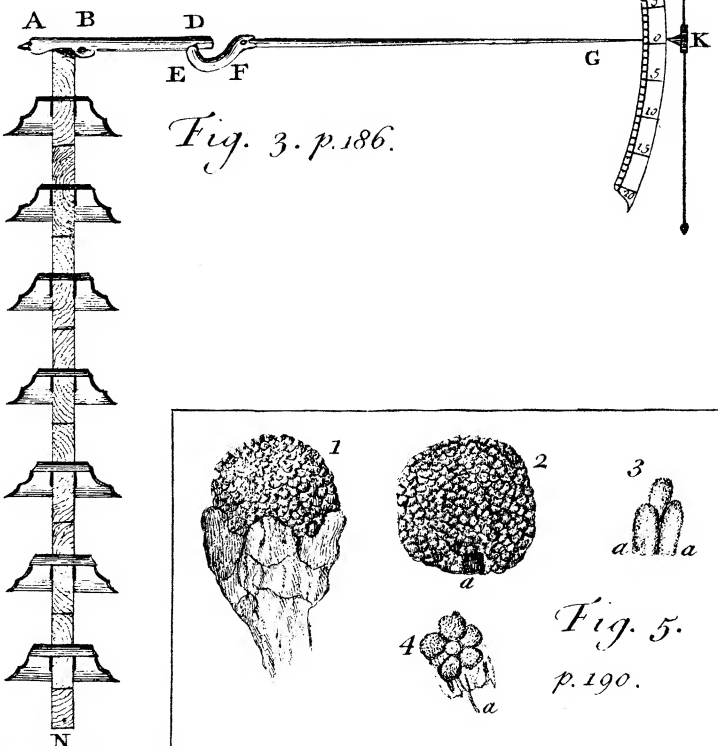

Fig. 3. p. 186.

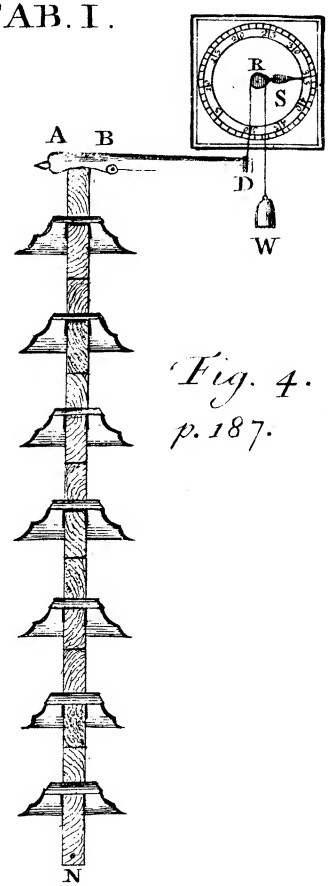

Fig. 4.
p. 187.

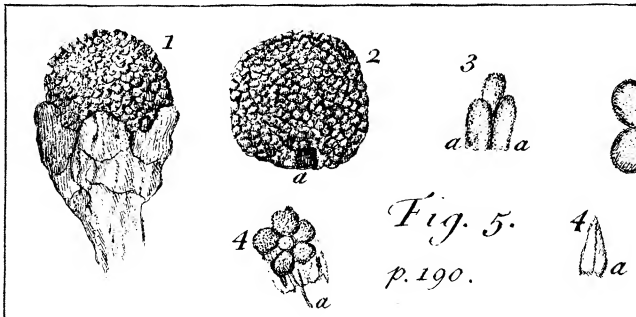

Fig. 5.
p. 190.